

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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|------------------------------|
| E-252 |
| Revision 31 |
| CONTINENTAL |
| C90-8F, -8FJ |
| C90-12F, -12FH, -12FJ, -12FP |
| C90-14F, -14FH, -14FJ, -16F |
| O-200-A, O-200-B, O-200-C, |
| O-200-D |
| August 25, 2009 |

TYPE CERTIFICATE DATA SHEET NO. E-252

Engine of models described herein conforming with this data sheet (which is a part of type certificate No. 252) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations and Federal Aviation Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other acceptable instructions.

Type Certificate Holder Teledyne Continental Motors
2039 Broad Street
Mobile, Alabama 36601

| Model | C90-8F | C90-12F, -14F, -16F | O-200-A, -B, -C |
|--|--|--|---------------------------------------|
| Type | 4HOA | --- | --- |
| Rating, standard atmosphere | | | |
| Max. continuous hp., r.p.m., at sea level pressure altitude | 90-2475 | --- | 100-2750 |
| Takeoff hp., 5 min., r.p.m., full throttle, at sea level pressure alt | 95-2625 | --- | 100-2750 |
| Fuel (min. grade aviation gasoline) | 80/87 | --- | --- |
| Lubricating oil, ambient air temp. | Oil Grade | | |
| Below 40° F. | SAE 20 | --- | --- |
| Above 40° F. | SAE 40 | --- | --- |
| Bore and stroke, in. | 4.062 x 3.875 | --- | --- |
| Displacement, cu. in. | 201 | --- | --- |
| Compression ratio | 7:1 | --- | --- |
| Weight (dry), lb. | 184 | 188 | 190 |
| C.G. location (with accessories) | | | |
| Fwd. of rear face of mounting lugs, in. | 6.2 | 4.6 | --- |
| Below crankshaft center line, in. | 1.5 | 1.3 | 1.2 |
| Propeller shaft, SAE No. | 1 Flange | --- | --- |
| Carburetion (see NOTE 4 for injectors) | Marvel-Schebler MA-3SPA (TCM P/N 627367, 629175, 637101 or 637835) | --- | Marvel-Schebler MA-3SPA |
| | Bendix-Stromberg NA-S3A1 (TCM P/N 530625, 530726, 531126, 530846, 531157) | --- | (TCM P/N 627143, 640416 or 633028) |
| Ignition | 2 Bendix-Scintilla S4RN-21 or -1227; or Slick -Electro 443 or 4003 magnetos or 1 ea. Bendix-Scintilla S4RN-200 and 204 | 2 Bendix-Scintilla S4LN- 21 or -1227 or 1 ea. S4LN- 200 and -204; Slick-Electro 447, 4001 or 4201 magnetos | --- |

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| Model | C90-8F | C90-12F, -14F, -16F | O-200-A, -B, -C |
|------------------------|-------------------|---------------------|-------------------|
| Timing, °BTC | 26 Top, 28 Bottom | --- | 24 Top, 24 Bottom |
| Spark plugs | See NOTE 6 | --- | --- |
| Oil sump capacity, qt. | 5 or 6 | --- | --- |

| | | | |
|---------|-------------------------------------|------------------|------------------|
| NOTES | 1 through 7 | 1, 2, 3, 4, 6, 7 | 1, 2, 3, 4, 6, 7 |
| "- - -" | indicates "same as preceding model" | | |

| Model | O-200-D |
|--|--|
| Type | 4HOA |
| Rating, standard atmosphere | |
| Max. continuous hp., r.p.m., at sea level pressure altitude | 100-2750 |
| Takeoff hp., 5 min., r.p.m., full throttle, at sea level pressure alt | 100-2750 |
| Fuel (min. grade aviation gasoline) | 100/100LL, B100/130 CIS |
| Lubricating oil, ambient air temp. | Oil Grade |
| Below 40° F. | SAE 30 |
| Above 40° F. | SAE 50 |
| Bore and stroke, in. | 4.062 x 3.875 |
| Displacement, cu. in. | 201 |
| Compression ratio | 8.5:1 |
| Weight (dry), lb. | 176.5 |
| C.G. location (with accessories) | |
| Fwd. of rear face of rear acc. case | 6.2 |
| Below crankshaft center line, in. | 0.96 |
| Beside crankshaft centerline toward 1-3 side | 0.06 |
| Propeller shaft, SAE No. | TCM/Cessna |
| Carburetion (see NOTE 4 for injectors) | --- |
| Ignition | Slick Electro 4301 (both sides) or 1 ea. TCM S4LSC-200 and S4LSC204 or 1 ea. TCM S4LSC-200 and S4LSC204T or TCM S4LSC-21 (both sides) |
| Timing, °BTC | 24° ± 1° |
| Spark plugs | See NOTE 6 |
| Oil sump capacity, qt. | 5 |

| | |
|---------|-------------------------------------|
| NOTES | 1, 2, 3, 4, 6, 7 |
| "- - -" | indicates "same as preceding model" |

| | |
|---------------------|--|
| Certification Basis | Part 13 of the Civil Air Regulations. Type Certificate No. 252 (All models except O-200-D) |
| | Part 33 of the Federal Air Regulations through Amendment 24 effective November 5, 2007 Type Certificate No. 252, Model O-200-D added October 10, 2008 |
| Production Basis | Production Certificate No. 7 Production Certificate No. 508 (All models except C90-16F) |

| | | | |
|---------|-----------------------------------|-------------------|---|
| NOTE 1. | Maximum permissible temperatures: | | |
| | | <u>C90 Series</u> | <u>O-200-A, -B, -C</u> |
| | Cylinder head | 525° F. | 525° F. |
| | Cylinder barrel | 275° F. | 290° F. |
| | Oil inlet | 225° F. | 225° F. (Straight mineral) |
| | | | 240° F. (Detergent meeting MHS-24, See NOTE 6) |
| | | | 480° F. |
| | | | N/A |
| | | | 240° F. |

NOTE 2. Carburetor fuel inlet pressure limits:

| | <u>Minimum</u> | <u>Maximum</u> |
|---|-----------------|----------------|
| MA-3SPA, TCM P/N 627143, 633028, 637101, 637835, 640416 | 5 In. Fuel Head | 6 PSIG |
| MA-3SPA, TCM P/N 627367, 629175 | 6 In. Fuel Head | 6 PSIG |
| MA-3SPA, TCM P/N 530625, 530726, 530846, 531126, 531157 | 6 In. Fuel Head | 6 PSIG |

Carburetor Air Intake Assembly, TCM A40793, used with MA-3SPA, Marvel-Schebler Carb., (Precision), (Volare Carburetors LLC)

Carburetor Air Intake Assembly, TCM A40522, used with NA-53A1, Stromberg Carburetor.

Carburetor Air Intake Assembly, TCM 657555, used with MA-3SPA, Marvel-Schebler Carb., (Precision), (Volare Carburetors LLC)

| | <u>C90 Series</u> | <u>O-200 Series</u> |
|----------------------|-------------------|--|
| Oil pressure limits: | 30 to 40 p.s.i.g. | 30 to 60 p.s.i.g. Minimum idling with hot oil 10 p.s.i.g. |

NOTE 3. The following accessory drive or mounting provisions are available.

| Accessory | Direction of Rotation* | Speed Ratio to Crankshaft | Max. Torque Continuous | (in.-lb.) Static | Maximum Overhang Moment (in.-lb.) |
|---------------------------|------------------------|---------------------------|------------------------|------------------|-----------------------------------|
| ****Tachometer | C | 0.500:1 | 7 | 50 | 25 |
| Generator/Alternator | CC | 2.035:1 | 60 | 600 | 100 |
| Starter | C | 35.7:1 | | | |
| ** Vacuum Pump | CC | 1.0:1 | 100 | 800 | 25 |
| *** Fuel Pump (diaphragm) | | 0.500:1 | | | |

Accessories previously listed in NOTE 3 are satisfactory for continued use with C90 Series engines.

* C - Clockwise viewing drive pad; CC - Counterclockwise.

** C90-16F and O-200 -A, -B, -C engines only.

*** TCM Eq. 5809 incorporating TCM P/N 40585 pump approved as part of type design of the O-200-A, -B, -C engines. AC fuel pump, TCM P/N 631391, available as optional equipment on C90-16F.

**** Does not apply to O-200-D engines

NOTE 4. The C90-8F is identical to the C90-12F model except that the accessory section does not incorporate provisions for generator and starter drives.

The C90-14 models incorporate Lord type engine mounts which are not interchangeable with C90-12 models due to different machining of the engine mounting lugs on the engine crankcase.

The C90-16F is similar to the C90-12F except that vacuum pump drive provisions have been added.

The Model O-200-B is similar to the O-200-A except for special crankshaft and crankcase providing for thrust application toward the engine only.

The Model O-200-C is similar to the O-200-A except for incorporation of provisions to supply oil pressure to a controllable pitch propeller through the crankshaft from an external boss on the crankcase.

The Model O-200-D is similar to the O-200-A except for special crankshaft flange, overall engine weight reduction, oil sump assembly, and higher compression pistons. The O-200-D does not have provisions for a vacuum pump or the diaphragm fuel pump

Those C90 Series models listed in the heading of this data sheet, suffixed by letters H, J and P, differ from the basic model designation as follows:

"H" denotes a special SAE No. 1 flange crankshaft and special crankcase for the installation of a hydraulically operated controllable pitch propeller requiring oil supply through the crankshaft.

"J" denotes incorporation of Model B-46 Ex-Cell-O fuel injector, P/N 530499, or American Bosch Model PSC-4A-95A2, P/N 534505, at a weight increase of 4 lb. over the corresponding carburetor equipped engine.

"P" denotes pusher installation incorporating special crankshaft and thrust bearing. Oil sump gauge rods will be marked as per installer's requirements.

NOTE 5. Bendix-Stromberg NAS-3A1 carburetor, P/N 530726, eligible only on Piper PA-11 airplanes equipped with Piper mufflers.

NOTE 6. Detergent oil meeting Continental Specification MHS-24 required when using 240° F oil inlet limits except during break-in period. Follow manufacturer's instructions for break-in or when changing oil types. marking or placards prescribing use of Continental Specification MHS-24 oil only shall be installed on or near the oil filler on installations using 240 ° F oil inlet temperatures.

NOTE 7. The following spark plugs are approved for use on engine models as indicated:

C90-8F, -12F, -14F, -16F

| | |
|-----------|--|
| AC | HSR83IR, SR83IR, HSR83P, SR83P, A88, HS88, HSR88, S88, S88D, HSR88, SR88, SR88D, HSR93, SR93 |
| Auto Lite | 18A1, BR4, BR4S, BR4SB, SH15, H15, SH15R, SH20A, SH150, SH200A |
| BG | RB485S, 706, 706R, 706S, 706SR, 919SR5, RB955S |
| Champion | C26, C26S, C27, C27S, RC27S, REM38P, REM38W, RHM38P, RHM38W, REM40E, RHM40E, ED41N, D41N, EM41E, EM41N, HM41E, M41E, M41N, EM42E, M42E |
| Red Seal | SA190, SE190, SJ190, SE230, SJ230 |

O-200-A, -B, -C, -D

| | |
|-----------|--|
| AC | HSR83IR, SR83IR, HSR83P, SR83P, A88, HS88, HSR88, S88, S88D, SR88, SR88D, HSR93, SR93 |
| Auto Lite | 18A1, SH15, H15, SH15R, SH20A, SH150, SH200A, PH26 |
| BG | RB485S, 706, 706S, 919SR5, RB955S |
| Champion | C27, C27S, RC27S, REM37BY, REM38P, REM38W, RHM38P, RHM38W, REM40E, RHM40E, ED41N, D41N, EM41E, EM41N, HM41E, M41E, M41N, EM42E, M42E |
| Red Seal | SA190, SE190, SJ190 SE230, SJ230 |

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